THE MILITARY ROLE IN SPACE --
A SUMMARY OF OFFICIAL, PUBLIC JUSTIFICATIONS

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I. INTRODUCTION

It has become increasingly evident that there is an interdependence of scientific, military, and commercial uses of space activities. The fact that it is difficult to make distinctions between "peaceful" and "military" uses of space has created a rather serious public policy problem. The United States government has continually stressed the goal of limiting the use of space for "peaceful purposes." But -- as was inevitable -- advances in space technology have contributed to both Soviet and American military posture. The political and psychological vulnerability of American military space activities is due, in large part, to past United States policy. The problem for American policy-makers is to logically define the proper military role in space. This paper will attempt to set forth some of the difficulties involved in such a process, by relating the public justifications for military interest in space and the relationships between military and civilian space programs.

The fact that American space activities are conducted primarily by two agencies -- the Department of Defense and National Aeronautics and Space Administration -- simply adds to the problem of attempting to define the military role in space. The goals of national prestige, scientific exploration, commercial exploitation, and military activities have all played parts in American space policies. But since 1958, American leaders have not formulated a public statement of national priorities in space which, in the opinion of the author, takes sufficient cognizance of the Soviet military space threat. Hitherto, as indicated above, the clarification of the role of the military in space has been inhibited by American government policies. President John F. Kennedy has stressed that the United States engages in "...space projects to help keep the peace and space projects to increase man's well-being in peace."[1] This policy indicates that military space activities serve two functions: the national security role and the role of ensuring that space will be reserved for "peaceful purposes." These roles are, in a sense, contradictory; an attempt must be made to clarify the ambiguities involved in the government's policy toward the military role in space.

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[1]President John F. Kennedy, in "United States Aeronautics and Space Activities, 1961," Message from the President of the United States Transmitting a Report on United States Aeronautics and Space Activities for the Calendar Year 1961, House Document No. 324, 87th Congress, 2nd Session, January 31, 1962, p. iii.

II. JUSTIFICATIONS FOR MILITARY INTEREST IN SPACE

Since 1958, there have been three basic themes justifying the military's interest in space: (1) that military space activities should be regarded as extensions of regular military service roles and missions; (2) that only those space activities which fulfill strict military requirement proofs should be encouraged; and (3) that it is necessary to engage in basic research to create "building blocks" for space systems which may in the future have military value. All of these themes have been employed with varying degrees of emphasis to justify the military's interest in space. The themes are interrelated, but they are not of the same degree of generality; the "building blocks" research theme is broader in scope than the other two themes.

1. EXTENSION OF REGULAR MILITARY SERVICE ROLES AND MISSIONS

The first basic theme -- that military space activities are merely extensions of regular service roles and missions -- is based upon the premise that space is not a separate medium but is simply an extension of defensive and offensive responsibilities on earth. Thus, it is the duty of the military services to develop any new technology -- including space technology -- which will assist them in performing their established roles and missions.

This approach results in the attitude that military space programs are not ends in themselves -- as are those civilian space activities designed to increase scientific knowledge. So when one attempts to evaluate military space activities, one must keep in mind that these activities are military programs which only incidentally involve space and that they have to be considered on a cost effectiveness basis in relation to non-space

military projects which aim at similar objectives. Furthermore, in the budget-making process concerning space activities, policy-makers should reach their decisions on the basis of which project best serves a given mission; this approach will supposedly avoid having unrelated military space programs compete for funds.

Each of the three military services has an interest in space activities, although the Air Force now has the officially recognized predominant interest in space. It will be useful to examine the arguments which each of the services has employed to justify its interest in space in order to illumine the overall theme of the extension of regular service roles and missions as a justification for the military role in space.

A. Army

The bulk of the Army's justification of its interest in space projects came, of course, before the March 6, 1961, Department of Defense directive placing principal responsibility for military space programs in the Air Force. Army officials stressed that space should not be considered a separate medium and further -- to counter Air Force arguments -- should not be viewed as an integral part of the atmosphere. The Army considered space, in the short run at least, "'...as a medium in which more appropriately to perform its tasks on the surface of the earth.'"[2]

The Army Chief of Staff stated:

> Military applications in support of earth operations can be readily foreseen; space

[2]Richard S. Morse, Assistant Secretary of the Army for Research and Development, in U.S. House of Representatives, Committee on Science and Astronautics, "Science, Astronautics, and Defense," Staff Report, 87th Congress, 1st Session, 1961, p. 17.

> itself as a military arena is subject to future developments (not necessarily under our control); military operations on other astral masses are most conjectural of all, though in this explosive age of technology, they cannot be dismissed as being fantastic.[3]

This basic approach emphasized two fundamental areas of interest in space: "near space" and "deep space."[4] The Army expressed its primary interest in near space, for this area offered many opportunities to assist in performing the Army's conventional missions (such as mapping, geodesy, meteorology, communications, and early warning). In addition, the Army advanced the claim that its experience in artillery and anti-aircraft operations was directly applicable to potential threats in near space. This argument played a role in interservice rivalries over the development and control of missiles. Deep space, according to the Army, was only of long-range interest, since man has not probed this area as yet. Furthermore, the Army stressed that deep space was a "defense," not only an Army, interest.[5]

Generally, the Army maintained that an "automatic" extension of earth missions into deep space was not really meaningful; space was to be used to support present earth missions of all

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[3]General L. L. Lemnitzer, Chief of Staff, U.S. Army, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1961," Hearings, Part 2, 86th Congress, 2nd Session, 1960, pp. 477-78.

[4]Lt. General Arthur G. Trudeau, Chief of Research and Development, U.S. Army, in U.S. House of Representatives, Committee on Science and Astronautics, "Science, Astronautics, and Defense," p. 20.

[5]Ibid.

the services. In the future, of course, new military uses of space would be developed. But in the meantime, space transcended any individual service; all the services should cooperate in the exploitation of space, preferably under a joint military organization controlled by the Department of Defense.[6]

B. Navy

Navy officials have consistently maintained that space is simply an environment which will enable the Navy to better support its present missions. Space technology will improve existing Navy capabilities, add new capabilities in the future, and may perhaps lead to new Navy missions. Furthermore, Navy officials have stressed that it is important to prevent any enemy from using space activities to threaten American naval power.

The Navy has several unique interests in the use of space; these include the needs for an all-weather navigation satellite system, precision aiming of POLARIS missiles, and surveillance of sea activities. In general, the Navy desires to ensure that satellites transmit in usable form necessary data directly to the fleets.[7] Such data would include space intelligence, weather information, early warning, mapping, etc. The Navy has stressed the importance of the sea to both civilian and military space programs. For instance, the Navy has lent operational and logistic support to these programs through sea transportation, tracking, and recovery.

In testifying before Congressional committees, naval officials have maintained that the space-related programs -- such as

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[6] Lemnitzer, loc. cit.

[7] Admiral Arleigh Burke, Chief of Naval Operations, in U.S. Senate, Committee on Appropriations, Subcommittee, "Department of Defense Appropriations for 1961," Hearings, Part 1, 86th Congress, 2nd Session, 1960, pp. 168-69.

the SPASUR satellite detection system and ANNA geodetic satellite -- which the Navy supports are within the state of the art; these programs do not require scientific "breakthroughs" for successful development and operation.[8] Thus, the Navy has concentrated on a few space systems which are attainable in a relatively short time and which can compete effectively with other ways of accomplishing basic Navy missions.[9]

C. Air Force

The Air Force invented the term "aerospace" to indicate that, in a strategic sense, space and the atmosphere constitute one medium. Therefore, any military missions in space can logically be viewed as extensions of those military missions which have traditionally been performed in the atmosphere.[10] The principal interest of the Air Force in exploiting space is to prevent American and Allied exclusion from space by countering Soviet attempts to dominate space. The only way in which the Air Force can achieve this goal is by attempting to gain the lead in military space technology, thereby increasing American

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[8] James H. Wakelin, Assistant Secretary of the Navy for Research and Development, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1962," Hearings, Part 4, 87th Congress, 1st Session, 1961, p. 381.

[9] Ibid.

[10] General Thomas D. White, Chief of Staff, U.S. Air Force, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1962," Hearings, Part 3, 87th Congress, 1st Session, 1961, pp. 409-10.

defensive, deterrent, and offensive capabilities.

Air Force officials have stated that they need to experiment in creating space systems which would be better, more effective, more economical, or the only means to perform the stated missions of the Air Force.[11] In such experimentation, the Air Force insists that it must ensure that space technology is technically and militarily sound; in other words, the Air Force could not rely entirely on civilian space research and development.

Air Force interests in space -- communications, weather information, space defense, space weapons, etc. -- are dedicated to the achievement and maintenance of the aerospace supremacy of the United States. Such superiority is necessary in order to deter or defeat aggression, according to the present Air Force Chief of Staff.[12] Without military superiority in space, therefore, America might not have the freedom to engage in either military or civilian space activities.

2. STRICT MILITARY REQUIREMENT PROOFS

The second major theme justifying the military's interest in space -- that only those space projects which fulfill strict military requirement proofs should be encouraged -- arises from

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[11] Lt. General James Ferguson, Deputy Chief of Staff for Research and Technology, U.S. Air Force, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1963," Hearings, Part 2, 87th Congress, 2nd Session, 1962, p. 478.

[12] General Curtis E. Le May, Chief of Staff, U.S. Air Force, in Air Force Information Policy Letter for Commanders, Vol. XVI, No. 9, May 1, 1962.

the traditional emphasis on service roles and missions. Since 1958, public discussion of the military role in space has centered on specific military applications of space vehicles. Military officials have had to convince the senior civilian officials that space projects had direct military applications: otherwise, these plans would not receive approval. In addition, if military officials could "prove" that certain space projects had direct military applications which could enhance traditional service roles and missions, then Congress would normally appropriate funds for such systems. Otherwise the dominant bias in Congress has been to encourage the civilian space agency to conduct research and development of the bulk of space projects.

This bias is the result of the dominant emphasis -- created by the 1958 National Aeronautics and Space Act and the Eisenhower Administration space policies -- on the goal of reserving space for "peaceful purposes." The novelty, unpredictability, and -- most importantly -- the high cost of space research and development encouraged the belief that a "good case" would have to be made for each military space project. Spectacular Soviet space achievements have modified this approach to a certain extent; but an important Congressional attitude that still persists can be seen in the following quotation:

> ...the Committee is concerned that having additional funds may help to revive some earlier noted tendencies to finance research projects not directly associated to military requirements. The Committee insists that these funds be used for only those projects having a direct relationship to military needs. This principle should also apply insofar as possible to so-called basic research, that is, such research should at

least have indications of some possible bearing on future military needs.[13]

The present Defense Department policy bearing on the general issue of military space projects embraces the following points: (1) the Department is concerned primarily with those space activities having "direct military applications;" (2) the Department should proceed with those space systems "...where it can be demonstrated with reasonable certainty that the use of space flight will enable us to accomplish our basic defense mission...;" and (3) the Department should conduct a program of basic research in space technology to enable the United States to meet military space requirements which might arise in the future.[14] There has been a good deal of controversy recently between the Office of the Secretary of Defense and Air Force officials concerning the optimum point at which space research projects should be committed to development. At this stage in the development of space technology, there are several clearly definable applications of space vehicles to basic defense problems; these include early warning, navigation, and communications.

Major development of military space systems has thus included projects which enhance present military capabilities or which might create new military capabilities. Public discussion of these projects has centered on their comparison with other

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[13]U.S. House of Representatives, Committee on Appropriations, "Department of Defense Appropriation Bill, 1959," Report No. 1830, May 28, 1958, 85th Congress, 2nd Session, 1958, p. 18.

[14]Dr. Harold Brown, Director of Defense Research and Engineering, in U.S. Senate, Committee on Appropriations, Subcommittee, "Department of Defense Appropriations for 1962," Hearings, 87th Congress, 1st Session, 1961, pp. 884-85.

military systems for accomplishing the same type of missions. In addition, military officials have often argued for the necessity of certain space systems because they offer unique advantages (in communications, mapping, target identification and location, early warning, navigation, weather surveillance, etc.).[15] Furthermore, Defense Department and military officials have consistently maintained that, since they do not wish to exploit space for its own sake, space programs should be judged on the same basis as other defense programs.[16] Space systems would then be considered an integral part of the overall defense program and not simply long-range experimentation.

3. "BUILDING BLOCKS" RESEARCH THEORY

A. Influence of Soviet Space Achievements

Soviet space achievements and their potential military applications have induced many military officials to stress the importance of a substantial program of basic research to create "building blocks" for space projects which may in the future have military value. This third major theme justifying the military's interest in space represents a different emphasis and is broader in scope than the first two themes discussed above.

There has been little dispute over the military implications of Soviet ballistic missile capabilities -- which indicate high

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[15] Ferguson, in U.S. House of Representatives, Committee on Armed Services, "Hearings on Military Posture and H.R. 9751," 87th Congress, 2nd Session, 1962, p. 3768.

[16] Dr. Herbert F. York, Director of Defense Research and Engineering, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1962," Part 4, pp. 42-43.

thrust rocket propulsion systems needed for intercontinental bombardment and space activities. Premier Nikita S. Khrushchev has frequently stressed the military utility of missiles as well as the interdependence of missile and space technology.[17] Intelligence reports have indicated that there are a number of possible military applications of Soviet advances in space technology.[18] Reversing the previous policy of official silence concerning Soviet military space capabilities, recent Soviet articles have stressed the importance of increased study of potential military space systems.[19]

There has been increasing American military concern over the strategic importance of the military potential of Soviet space achievements. Soviet emphasis on space activities has led many officials to the conclusion that the Soviet Union seeks to dominate space -- thereby denying any substantial American access to space.[20] Further, it is possible that the control of space may tip the balance of power in the cold war. For these reasons, the United States finds itself in a technological "race" with

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[17] e.g., Letter of Premier Nikita S. Khrushchev to President John F. Kennedy, March 20, 1962, in U.S. Senate, Committee on Aeronautical and Space Sciences, "Soviet Space Programs: Organization, Plans, Goals, and International Implications," Staff Report, 87th Congress, 2nd Session, May 31, 1962, p. 223.

[18] Eugene M. Zuckert, Secretary of the Air Force, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1963," Part 2, pp. 461-62.

[19] A. L. Horelick, "Soviet Interest in the Military Use of Outer Space: Some New Evidence," RAND Research Memorandum, RM-3157-PR, April, 1962, p. iv.

[20] White, in U.S. Senate, Committee on Appropriations, Subcommittee, "Department of Defense Appropriations for 1962," p. 291.

the Soviet Union. The purpose of this competition could be conceived of as an attempt to buy technological "insurance" against future Soviet military space breakthroughs which could threaten American security.[21]

In addition to their strategic implications, Soviet space achievements have had critical cold war propaganda importance. Since the launching of the first Sputnik, Soviet leaders have concentrated on spectacular space achievements in order to lessen American prestige and undermine American leadership of the free world. The Soviet Union, then, uses its space programs as political instruments with which to capitalize on the alleged dual nature of its space achievements: "peaceful" intent and military implications.[22] There is little doubt that space achievements are generally considered throughout the world as indications of a nation's scientific and technological status, military power, and political prestige. Therefore, the United States has no choice but to compete with the Soviet Union in the space research and development "race."

B. Nature and Functions of Space Research

Since 1958, certain military officials -- usually those directly concerned with research and development -- have emphasized the need to concentrate to a greater extent on basic space research; they have de-emphasized the themes of service roles and missions and strict military requirement proofs. In order

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[21]Roswell L. Gilpatric, Deputy Secretary of Defense, in Air Force Information Policy Letter for Commanders, Supplement, No. 108, July 1962, p. 16.

[22]Horelick, "The Soviet Union and the Political Uses of Outer Space," RAND Paper, P-2480, November 1961, p. 40.

to develop components for military systems of the future, it is essential to conduct basic research to lay the foundation of knowledge necessary when military space requirements can be more clearly identified. The importance of concentrating on "building blocks" for future military space systems has been expressed best in the following words:

> At this stage of development, it is difficult to define accurately the specific characteristics that future military operational systems of many kinds ought to have. We must, therefore, engage in a broad program covering basic building blocks which will develop technological capabilities to meet many possible contingencies. In this way, we will provide necessary insurance against military surprise in space by advancing our knowledge on a systematic basis so as to permit the shortest possible time lag in undertaking full-scale development programs as specific needs are identified.[23]

This approach has given rise to some fears that the Defense Department seeks to pre-empt many areas of NASA research;[24] it is likely that political opposition to an expanded military role in space will center around such fears.

At this time, there is an extensive lack of knowledge of the space environment. But it is logical to assume that military applications will follow the extension of space experimentation, since virtually all types of technology have given rise to military uses. Although precise military requirements of

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[23]Brown, in U.S. Senate, Committee on Aeronautical and Space Sciences, "NASA Authorization for Fiscal Year 1963," Hearings, 87th Congress, 2nd Session, 1962, p. 335.

[24]See George C. Wilson, "Defense Denies Bid for NASA Programs," Aviation Week and Space Technology, June 25, 1962, p. 34.

space technology are not known at this stage, such goals as longer payload lifetimes in orbit, lower cost per pound in orbit, and reusability of boosters would enhance the military and economic effectiveness of any space system.

Effective research and development programs involving military space technology will require long-term investment. Past history has shown, however, that it is easier to finance immediate military needs. In addition, the bias toward strict military requirement proofs will tend to hamper such long-term investment projects.

The Advanced Research Projects Agency was created to escape the burdens of formal military requirements. The former director of the Agency once stated:

> The fact must be recognized and squarely faced that if an end requirement, be it military or any other, must be established before we embark on research, then by definition it is no longer research. It is our purpose to accelerate the national technological status by sponsoring research without having to prove an ultimate specific application before we embark.[25]

Until 1961, the Agency conducted quite a few feasibility investigations and exploratory research projects related to space, but most of its space programs have been transferred to NASA or the Air Force. At the present time, the Air Force has been assigned the primary responsibility for the research, development, test, and evaluation of military space programs. There are a few exceptions to this general policy; and the Army and the Navy are

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[25]Roy W. Johnson, Director, Advanced Research Projects Agency, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1959," Hearings, 85th Congress, 2nd Session, 1958, p. 291.

permitted to conduct "preliminary research" (studies, experimentation, and model fabrication) in military space technology and to pursue the development of certain systems.[26]

Congress has tended to emphasize the themes of service roles and missions and formal military requirements. Service representatives generally have tended to frame their justifications in terms of these themes. But the necessity to engage in building blocks space research has been voiced since 1958, and it now receives the support of the highest military and Defense Department officials.

Associated with the programs of basic research in the problem of "defining" military space programs before proceeding into the development stage. This problem has caused considerable controversy between the Office of the Secretary of Defense and Air Force officials. The Defense Department policy of holding down costs has created two currents of thinking on the proper degree of emphasis on the definition of military space programs. Defense Department officials have asserted that military space programs must be very carefully defined before the development stage in order to produce more effective estimates of future costs and length and capabilities of the programs; these officials have further claimed that development of space programs on a concurrent basis is generally unjustified at the present time.[27] Air Force officials have disputed this line of thinking; they have maintained that in order to develop techniques

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[26]York, op. cit., p. 23.

[27]Brown, in George C. Wilson, "USAF-Defense Research Conflict Aired," Aviation Week and Space Technology, August 13, 1962, pp. 32-33.

which have potential military applications in space, there must be an expansion in basic research, applied research and advanced technology.[28] Furthermore, they have asserted that the development of military space programs on a concurrent basis is justified and would be less costly in the long run.[29]

4. JUSTIFICATIONS FOR MILITARY INTEREST IN SPECIFIC APPLICATIONS OF SPACE SYSTEMS

The Air Force has identified several early and future military applications of space systems. Early military applications include target identification and location, geodetic mapping, aid to surface navigation, early warning of ballistic missile attack, global military communications, meteorological surveillance, and inspection and neutralization of satellites.[30] Future missions of military space systems will include defense, offense, command and control, and support.[31]

Much of the public discussion of the military role in space has centered around these early and future military applications of space systems. Military service representatives have attempted to persuade Congress that the space environment could provide unique military contributions -- such as the opportunity to inspect and destroy hostile satellites; in addition, they have claimed that it may be possible to perform certain functions better or cheaper in space than in other environments.

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[28] General Bernard A. Schriever, Commander, U.S. Air Force Systems Command, in ibid.

[29] Ibid.

[30] Ferguson Statement, U.S. House of Representatives, Committee on Armed Services, February 19, 1962, pp. 6-7.

[31] Ibid.

Justifications for military satellite communications systems have included several anticipated characteristics which would meet the rigorous requirements of military operations better than conventional systems. These characteristics would include the following: increased capacity; all-weather reliability; flexibility regardless of global location; and resistance to natural interference, jamming, and sabotage. Conventional channels of communications will become saturated in the near future; in addition, they are dependent upon high frequency radio systems and undersea cables -- both of which are highly vulnerable. Military officials also argue that satellite communications systems would play a vital role in offensive and defensive command functions. They could perhaps reduce the chances of an accidental war[32] or could ensure American "survivability" in case of a war on earth.[33]

Reconnaissance is one of the most obvious military uses of space; space systems could assist the military in gaining information from larger geographic areas and over longer periods of time than other systems. There could be both defensive and offensive advantages of space reconnaissance systems, military officials have argued.[34] Reconnaissance satellites could aid in reporting ballistic missile attacks or mass military movements;

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[32]Klaus Knorr, in Joseph M. Goldsen, Chairman, "International Political Implications of Activities in Outer Space," A Report of a Conference, October 22-23, 1959, RAND Report, R-362-RC, p. 141.

[33]Ferguson, in U.S. House of Representatives, Committee on Armed Services, "Hearings on Military Posture and H.R. 9751," p. 3769.

[34]White, in U.S. Senate, Committee on Armed Services, "Military Procurement Authorization for Fiscal Year 1962," Hearings, 87th Congress, 1st Session, 1961, p. 344.

in addition, they could be useful in identifying and locating targets and gathering information on target destruction. Satellites could also increase the reliability and accuracy of meteorological information; such information could be useful in predicting radioactive fallout patterns, assisting various land and sea military movements, and permitting more accurate strikes.[35]

Military officials have claimed that navigation satellites would be very useful for military purposes. Because of their stability and predictability in orbit, such satellite systems could enable aircraft, ships, and submarines to determine their position at any location on the globe. Furthermore, navigation satellites would be reliable under all kinds of weather conditions.

There has been considerable public discussion about the military value of using men on space missions. Such discussion has been prompted by the sensational interest created by the American and Soviet astronaut programs, the United States goal of reaching the moon, and speculations concerning the possible military value of the moon. The present Defense Department policy is that, "We cannot at this time identify a...manned military space flight mission."[36] However, the Department is proceeding on the assumption that there could be many military

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[35]Advanced Research Projects Agency Estimate and General Justification, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1960," Hearings, Part 6, 86th Congress, 1st Session, 1959, pp. 99-102.

[36]Brown, in U.S. Senate, Committee on Aeronautical and Space Sciences, "NASA Authorization for Fiscal Year 1963," pp. 347-48.

applications of manned orbital flight in the future.[37] The Soviet Union has concentrated its efforts on manned orbital capability, and the Air Force maintains that these efforts foreshadow an attempt to dominate space.[38] Therefore, the Air Force has engaged in building blocks research for manned military space systems, realizing that it could prove disastrous to wait for the establishment of a demonstrated military requirement for men in space.

Military officials have maintained that there are many possible advantages to be gained by having men in control of space systems. The most important advantage is that the presence of men will lend the quality of reason to the mission, producing more adaptability as well as the capability of making quick judgments in unanticipated circumstances and the ability of deciding issues concerning the employment of space weapons. Also, manned military test stations in space could increase the effectiveness of programs of space experimentation and exploration.

In order to develop the basic technology for manned space flight, the Air Force is conducting the X-20 Dyna-Soar program. This program is an attempt to create capabilities for

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[37]Robert S. McNamara, Secretary of Defense, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1962," Part 3, p. 135.

[38]General C. H. Mitchell, Vice Commander, U.S. Air Force Systems Command, in U.S. Senate, Committee on Aeronautical and Space Sciences, "Soviet Space Programs: Organization, Plans, Goals, and International Implications," p. 222. Requoted from Missiles and Rockets, Vol. X, January 15, 1962, p. 10.

effective military action in space: viz., the abilities of rapid launch, maneuverability in space, and return to preselected points on earth. Since the X-20 Dyna-Soar would be reusable, it would greatly decrease the cost of space operations; in addition, it would possess an all-weather capability.

The military value of the moon and other celestial bodies is highly conjectural. But military and Defense Department officials have emphasized that there is value in obtaining basic information about the moon for possible military use in the future.[39] Cold war propaganda value of reaching the moon and fear of possible Soviet control of the moon are factors in the consideration of its military worth. Various conceivable military uses of the moon have been suggested: observation, communications, offense, and increased retaliatory capacity.

Military officials are quite interested in the potential of space for both defensive and offensive purposes. Space systems might, if successfully developed, for example, provide early warning of ballistic missile attack; they could also complement the Nike-Zeus terminal intercept system with methods of destroying ballistic missiles in the launch phase. As more satellites are sent into orbit, the problems of defense will multiply. Space systems will be used for detection, tracking, inspection, and destruction of satellites.

There has been a good deal less public discussion recently by military officials concerning the potentialities of space

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[39]Richard E. Horner, Assistant Secretary of the Air Force for Research and Development, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1959; Department of the Air Force," Hearings, 85th Congress, 2nd Session, 1958, p. 189.

for offensive missions than for defensive missions. This is probably due to the Administration's stress on the "peaceful" aspects of space and to the traditional emphasis on the deterrent function of American military strength.

III. RELATIONSHIPS BETWEEN MILITARY AND CIVILIAN SPACE PROGRAMS

The National Aeronautics and Space Act of 1958 attempted to set the guidelines for future American space policy. It asserted the primacy of peaceful purposes in space and entrusted NASA with the principal role in the space program. However, the Act did assign to the Department of Defense those space "...activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including the research and development necessary to make effective provision for the defense of the United States)..."[40] Because of the pronounced interdependence of military, economic, and scientific uses of space, it has become increasingly evident that it is not possible to draw a firm line between military and "peaceful" uses of space systems. This fact has clouded the attempts to formulate a logical set of national objectives or priorities in space.

Since 1958, the predominant view concerning space activities has been that space must be reserved for "peaceful purposes;" space -- allegedly untouched by international conflict -- thus represents a solid opportunity for international cooperation. Soviet propaganda has encouraged this line of thought and has criticized American military space plans. American military interest in space, therefore, has been at a political and psychological disadvantage. In addition, there has been a serious lack of national concern about the Soviet military potential in

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[40] U.S. Senate, Committee on Aeronautical and Space Sciences, "National Aeronautics and Space Act of 1958 as Amended through October 6, 1961," Staff Report, 87th Congress, 1st Session, October 6, 1961, p. 1.

space. Consequently, there is not at the present time any politically acknowledged and well-defined statement of the role of the military in space.

The Administration has recently attempted to clarify the confusion concerning the division of space programs with the assertion that there is no real distinction between peaceful and non-peaceful objectives for space, for military space activities are peaceful in the sense that they deter war and protect the peace.[41] In the words of Vice President Lyndon Johnson:

> ...it is national policy to maintain a viable national space program, not a separate program for NASA and another for Defense and still another for each of several other agencies. Likewise, it is understood that the United States does not have a division between peaceful and non-peaceful objectives for space, but rather has space missions to help keep the peace and space missions to improve our ability to live well in peace.[42]

The Administration has thus attempted to attribute a positive role to military space programs; this role involves protecting the national security and ensuring that space is used for "peaceful" purposes. This policy counters previous attitudes which centered on the fear that encouragement of military space plans would impair the dominant emphasis on the "peaceful" purposes of space and could damage the "image" of the United States abroad.

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[41] Dr. Edward C. Welsh, Executive Secretary, National Aeronautics and Space Council, in Air Force Policy Letter, May 15, 1962.

[42] Vice President Lyndon Johnson, in "United States Aeronautics and Space Activities, 1961," p. 6.

NASA and the Department of Defense obviously have similar interests in advancing knowledge of basic space technology -- which involves launch vehicles; in-space propulsion; bioastronautics equipment; rendezvous, docking, and transfer; power supplies; sensors; communications equipment; and re-entry and recovery techniques. In the furtherance of these interests, both agencies have engaged in formal and informal cooperation; for example, they have exchanged scientific information, used joint facilities, exchanged personnel, and engaged in informal coordination of certain policies. Also, the agencies have signed formal agreements regarding launch vehicle programs, communications satellites, and missile ranges. Such cooperation, however, has occurred on a purely pragmatic basis; decisions concerning the control of space projects are made after a consideration of such factors as availability of funds, service roles and missions, Congressional pressures, degree of success of past programs, availability of personnel, etc.

Defense Department and NASA officials have publicly asserted -- perhaps too vigorously -- that there is complete coordination between the military and civilian space programs, with virtually no conflicts of any kind. Actually, however, NASA and the military have certain important conflicting interests: different technical interests and competition for funds. Military officials have the natural interest of desiring to ensure that the technical base of space systems will be militarily sound; these officials fear that the technology suitable for specific defense purposes will be neglected by NASA.[43] An example of these different technical interests is the rendezvous program.

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[43]Zuckert, in Air Force Information Policy Letter for Commanders, Vol. XVI, No. 7, April 1, 1962.

NASA is attempting to develop a capability of rendezvousing with "cooperative" satellites for the purpose of space exploration; the military is interested in developing the capability of rendezvousing with enemy or "uncooperative" satellites.[44] In addition, it is essential that military space vehicles be equipped to survive in a combat environment and to be reused.

The American space programs involve immense amounts of money, and it is inevitable that the military and civilian space programs have to compete for funds. Military space programs, for instance, must be considered in relation to other defense projects. Also, the national goal of reaching the moon involves so much money that it will probably cause pressures to reduce expenditures in other areas of space research and development. Congress has been increasingly concerned with the duplication and excessive costs of the military and civilian space programs; in addition, Congressional committees have asserted that civilian-military competition is the reason for the lack of clearly formulated national objectives in space.[45] Competition and certain areas of duplication, however, are inherent in the fact that the nation conducts two space programs.

The Defense Department policy concerning information about military space activities is an important element in the relationships between civilian and military space programs. In the past, there has been a considerable amount of information available about the objectives and results of military space

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[44]Zuckert, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1963," Part 2, pp. 461-62.

[45]New York Times, January 19, 1961, p. 12.

projects. The Kennedy Administration decided that too much sensitive military space information was being released to the public; such information could damage American security and political interests, argued government officials.[46] In the future, Administration officials asserted, the government would prefer to speak in terms of accomplishments, rather than objectives, of space programs.[47]

One serious problem to be faced is that of deciding where to draw the line between sensitive military space information and data which are essential to the success of NASA space programs requiring the cooperation of foreign space scientists and the American scientific community. Those persons who are primarily interested in non-military space projects have maintained that a successful space program depends upon the maximum exchange of information -- between military and civilian agencies and among different nations. They assert that excessive classification will cut the free flow of space data and thereby damage both civilian and military space programs.[48]

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[46]McNamara, in U.S. Senate, Committee on Armed Services, "Military Procurement Authorization for Fiscal Year 1962," pp. 106, 107, and 110.

[47]Joseph V. Charyk, Under Secretary of the Air Force, in U.S. House of Representatives, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, "Department of Defense Appropriations for 1962," Part 4, pp. 453, 455-56.

[48]See "Space Secrecy Rule Stirs Fear, Confusion," Aviation Week and Space Technology, May 21, 1962, p. 26.

CONCLUSION

The three themes of service roles and missions, military requirement proofs, and building blocks research are interrelated; for roles and missions create military requirements, and these requirements necessitate research and development. As indicated above, the military role in space has not been logically defined. Part of this failure is due to the overemphasis of the themes of roles and missions and military requirement proofs as well as the underemphasis of the necessity for building blocks space research. Military officials must emphasize that advanced research and development is the most important element in establishing the military role in space; they must convince Congress that this research is indispensable in assisting the performance of current roles and missions, fulfilling present military requirements, and exploring potential military uses of space in order to counter the Soviet military space threat.

Another reason for the fact that the military role in space has not been logically defined is that American national objectives in space (the theoretical source of the three themes justifying the military's interest in space) are not clear -- in other words, there exists no established set of priorities for space programs which takes sufficient cognizance of the Soviet military space threat. The current emphasis on reserving space for "peaceful purposes" is largely meaningless, since it is quite difficult to define "peaceful purposes" or to distinguish precisely between "military" and "peaceful" uses of space. The first step in clarifying our national objectives in space (and, thereby, the military space role) is to establish that national

security takes priority in space and that civilian space exploration is secondary. This policy will ensure that the defensive and offensive requirements of American security are protected and will set guidelines for the relationships between military and civilian space programs.